

REMARKS

The Examiner is thanked for the performance of a thorough search.

No claims have been canceled, added, or amended. Hence, Claims 1, 4-12, 33-35, and 41-55 are pending in the present application.

The issues raised in the final Office Action mailed December 28, 2009 are addressed hereinafter.

I. ISSUES RELATING TO THE PRIOR ART

A. INDEPENDENT CLAIM 1

Claim 1 was rejected under 35 U.S.C. § 102(e) as allegedly anticipated by Manning et al., U.S. Patent No. 6,959,416 (“MANNING”). The rejection is respectfully traversed.

Among other features, Claim 1 expressly recites:

receiving commands from a user, wherein said commands establish a **mapping** between attributes of an **XML document** and attributes of a **relational database**; wherein said **attributes** of said **relational database** correspond to **columns in tables in said relational database**; **based on said commands, automatically generating a mapping scheme that represents said mapping**, wherein said **mapping scheme includes** at least one of:
 multiple attributes of said **XML document** mapped to a **single** attribute of said **relational database**; and
 ... ;
using said mapping scheme to perform a **single transformation** that moves said XML document **directly** into said relational database: (a) **without materializing said entire XML document separate from said XML document and said relational database during said transformation**, and (b) **without creating and storing any representation of said entire XML document separate from said XML document and said relational database during said transformation**;
 ...

It is respectfully submitted that MANNING does not describe the above features of Claim 1.

- a. MANNING does not describe the feature of Claim 1 of receiving commands from a user, wherein said commands establish a mapping between attributes of an XML document and attributes of a relational database.

MANNING describes a system for managing structured documents, such as XML documents. (See MANNING, col. 2, lines 20-21 and 47-48.) Specifically, MANNING describes that at least one table is generated based on a schema of elements in the managed structured documents, and that at least one table is designed to include entries for each element instance in the documents and at least one data object for one element instance. For each element instance, one entry is added to at least one table. The entry includes an element identifier for the element instance, the data object for the element instance, and a document identifier for the structured document including the element instance. The data object associated with the element instance may comprise one of an attribute value or content. (See MANNING, Fig. 2 and col. 2, lines 23-40.)

Significantly, however, MANNING describes that the tables created for storing the structured documents are generated based on a schema of the documents, such as a Document Type Definition (DTD). (See MANNING col. 2, lines 47-52.) In other words, the rules for creating the tables are hard-coded such that a given DTD will always cause the creation of the same set of tables. For example, with respect to its Fig. 3, in col. 5, lines 29-33 MANNING describes that an XML document manager generates a table for each element that is defined in a DTD corresponding to an XML document that is received for storing. Thus, a user of MANNING system has no ability to customize the element-to-table mappings that the system produces.

In contrast, Claim 1 includes the feature of receiving commands from a user, **wherein said commands establish a mapping between attributes of an XML document and attributes of a relational database.** In other words, Claim 1 features receiving user-specified commands that establish a mapping between attributes of an XML document and attributes of a relational database. Since MANNING describes that the tables for storing an XML document are

generated based on a **DTD** and **not** on **user-specified** commands, MANNING does not describe the above feature of Claim 1. Further, it is noted that the Applicant reviewed MANNING in its entirety but did not find any structure of functionality that corresponds to the above feature of Claim 1.

For the above reasons, it is respectfully submitted that MANNING does not describe the feature of Claim 1 of receiving commands from a user, wherein said commands establish a mapping between attributes of an XML document and attributes of a relational database.

b. MANNING does not describe the feature of Claim 1 of generating a mapping scheme in which multiple attributes of the XML document are mapped to a single attribute of said relational database.

The Office Action asserts that the above feature of Claim 1 is described in col. 4, lines 25-55 of MANNING. This assertion is incorrect.

In col. 4, lines 18-67, MANNING describes some tables that are maintained in an XML repository for storing XML documents. Significantly, however, MANNING describes that for every entry in an element directory table (which includes an entry for each instance of an element in the XML documents), there is **one** entry in **one** of the element tables providing the associated objects, e.g., attribute values or content, for that instance of the element identified in the element directory table. (See MANNING, col. 4, lines 35-40.) In other words, this passage describes that each element instance of an XML document is stored in its own separate table. This is clearly illustrated in Fig. 7 of MANNING, in which a **separate** table (e.g., each of tables “GraphicObject”, “Document”, “Sheet”, “Page”, “TextObject”) is used to store the instance of each **separate** element from the XML document (e.g., each of elements “GraphicObject”, “Document”, “Sheet”, “Page”, “TextObject”, as listed in table 214). See also MANNING, col. 6, lines 41 to 67.

In contrast, Claim 1 includes the features of: ... generating a mapping scheme that represents said mapping, wherein said mapping scheme includes ... at least **multiple** attributes of the XML document mapped to a **single** attribute of the relational database; and wherein said attributes of said relational database correspond to columns in tables in said relational database. That is, multiple XML attributes are mapped to a single **column**. Since MANNING expressly describes that instances of each **separate element** of an XML document are stored in a **separate table** corresponding solely to that element, MANNING does not describe the above features of Claim 1.

c. MANNING does not describe the feature of Claim 1 of using said mapping scheme to perform a single transformation that moves said XML document directly into said relational database.

The Office Action asserts that the above feature of Claim 1 is described in col. 5, lines 10-36 of MANNING. This assertion is incorrect.

With respect to its Fig. 1, in col. 3, lines 44-49 and col. 5, lines 1-4, MANNING describes a computer system that includes an XML document manager, where the XML document manager includes an XML parser known in the art that includes classes and methods for parsing, generating, manipulating, and validating XML documents. Significantly, however, with respect to its Fig. 3, in col. 5, lines 14-16 MANNING expressly describes that the logic for storing an XML document begins with the XML document manager **receiving** the XML document. Further, in col. 5, lines 38-45, MANNING describes that once the tables for storing the XML document are available, the XML document manager parses **the received** XML document to access the element instance at the first element tag in **the received** XML document. In other words, this passage of MANNING at least suggests (if not expressly describes) that the XML document manager in the computer system receives the **entire** XML document **prior to** starting the process of accessing the elements in the received XML document. Thus, the process

of storing the elements of the received XML document into a set of tables necessarily involves creating in the computer system at least one representation of the entire XML document that is separate from the XML document itself and the database tables in which the XML document is eventually stored.

In contrast, Claim 1 includes the feature of using said mapping scheme to perform a single transformation that moves said XML document directly into said relational database: (a) without materializing said entire XML document separate from said XML document and said relational database during said transformation, and (b) without creating and storing any representation of said entire XML document separate from said XML document and said relational database during said transformation. Since MANNING describes that at least one representation of the entire received XML document is created in the computer system hosting the XML document manager, MANNING does not describe the above feature of Claim 1.

For example, MANNING describes that the process of accessing the elements in the XML document and storing these elements in database tables involves creating in the computer system a representation of the received XML document, which is consistent with how known XML parsers operate (as referred to in col. 5, lines 1-4 of MANNING). However, the representation of the XML document within the computer system is separate from the XML document itself and the database tables in which the XML document is eventually stored (as clearly illustrated in Fig. 1 of MANNING); further, the representation of the XML document in the computer system is used by the XML document manager during the process of parsing the elements of the XML document and storing these elements in the XML repository. In contrast, the above features of Claim 1 indicate that a single transformation is performed to move an XML document directly into a relational database: (a) without materializing the entire XML document separate from the XML document and the relational database during the

transformation, and (b) **without** creating and storing **any representation** of the **entire** XML document **separate** from the XML document and the relational database **during** the transformation. Thus, MANNING does not describe the above feature of Claim 1.

For the foregoing reasons, MANNING does not describe all features of Claim 1. Thus, Claim 1 is patentable under 35 U.S.C. § 102(e) over MANNING. Reconsideration and withdrawal of the rejection of Claim 1 is respectfully requested.

B. INDEPENDENT CLAIM 42

Claim 42 was rejected under 35 U.S.C. § 102(e) as allegedly anticipated by MANNING.

Claim 42 includes features similar to the features of Claim 1 discussed above, except in the context of a computer-readable storage medium. For this reason, it is respectfully submitted that Claim 42 is patentable under 35 U.S.C. § 102(e) over MANNING for at least the reasons given above with respect to Claim 1. Reconsideration and withdrawal of the rejection of Claim 42 is respectfully requested.

C. DEPENDENT CLAIMS 6 AND 45

Claims 6 and 45 were rejected under 35 U.S.C. § 102(e) as allegedly anticipated by MANNING. The rejection is respectfully traversed.

Claim 6 depends from independent Claim 1, and is thus allowable for at least the reasons given above for Claim 1. Further, Claim 6 comprises the features of:

- the step of receiving commands from the user includes receiving user input that specifies a condition, and an action associated with the condition; and
- the step of using said mapping scheme to perform said single transformation further comprises the steps of:
 - performing an operation that includes converting data, based on said mapping scheme, from said XML document to a format associated with said relational database;
 - during performance of said operation, performing the steps of:
 - determining whether the condition is satisfied; and
 - if the condition is satisfied, then performing said action.

The Office Action asserts that these features of Claim 6 are described in Fig. 3 and in col. 6, lines 5-40 of MANNING. This assertion is incorrect.

With respect to its Fig. 4, in col. 6, lines 5-40 MANNING describes logic implemented in the XML document manager to process a query to locate those XML documents having element objects (e.g., attribute values or content) that match the search criteria included in the query. Significantly, MANNING describes that the query and the search criteria therein are processed against XML documents that are already stored in the XML repository. (See MANNING, col. 6, lines 11-15.) In other words, MANNING describes that the query and the search criteria therein are not evaluated during the process of storing the element instances of an XML document in the XML repository. Further, with respect to its Fig. 3, in col. 5, line 10 to col. 6, line 6, MANNING does not describe that any operation of converting data is performed during the process of storing the element instances of an XML document into the XML repository; rather, as amply illustrated in Figs. 5 and 7, MANNING describes that content and attributes from element instances of an XML document are stored in the tables of the XML repository without any conversion or other changes of content and attributes (see also MANNING, col. 3, lines 58-65; and col. 6, lines 41-52 and 63-67.)

In contrast, the features of Claim 6 indicate that input received from the user specifies (in the mapping between the attributes of the XML document and the attributes of the relational database) a condition and an action associated with the condition. Then, the step of using the mapping scheme (which represents the mapping) to perform the single transformation that moves the XML document directly into the relational database comprises the steps of: performing an operation that includes converting data, based on said mapping scheme, from said XML document to a format associated with said relational database; and during performance of said

operation, performing the steps of determining whether the condition is satisfied and if the condition is satisfied, then performing said action.

As discussed above, MANNING does not describe that any functionality of performing an action based on a user-specified condition is performed during a data-conversion operation that is part of the process of storing an element instance of an XML document into the XML repository; in fact, as discussed above, MANNING does not even describe that any operation that converts data is performed as part of the process of storing the element instance into the XML repository. Further, as discussed above with respect to Claim 1, MANNING does not describe a functionality of receiving user commands that specify a mapping between the attributes of an XML document and the attributes of a relational database; thus, MANNING cannot possibly describe the feature of Claim 6 of receiving, as part of the user commands, user input that specifies a condition and an action associated with the condition. Thus, MANNING does not describe the above features of Claim 6.

For the foregoing reasons, MANNING does not describe all features of Claim 6, and therefore Claim 6 is patentable under 35 U.S.C. § 102(e) over MANNING. Reconsideration and withdrawal of the rejection of Claim 6 is respectfully requested.

Claim 45 depends from independent Claim 42, and is thus allowable for at least the reasons given above for Claim 42. Further, Claim 45 includes features similar to the features of Claim 6 discussed above, except in the context of a computer-readable storage medium. Thus, Claim 45 is patentable under 35 U.S.C. § 102(e) over MANNING for at least the reasons given above with respect to Claim 6. Reconsideration and withdrawal of the rejection of Claim 45 is respectfully requested.

D. DEPENDENT CLAIMS 4 AND 43

Claims 4 and 43 were rejected under 35 U.S.C. § 102(e) as allegedly anticipated by

MANNING. The rejection is respectfully traversed.

Claim 4 depends from independent Claim 1, and is thus allowable for at least the reasons given above for Claim 1. Further, Claim 4 comprises the feature of:

wherein said mapping scheme further includes instructions on how to collapse a number of attributes of said XML document into a smaller number of attributes of said relational database.

It is respectfully submitted that MANNING does not describe this feature of Claim 4.

As discussed above with respect to Claim 1, MANNING describes that instances of each separate element of an XML document are stored in a separate table corresponding solely to that element. Specifically, with respect to its Fig. 2, in col. 4, lines 35-40 MANNING describes that each element instance of an XML document is stored in its own separate table. This is clearly illustrated in Fig. 7 of MANNING, in which a separate table (e.g., each of tables “GraphicObject”, “Document”, “Sheet”, “Page”, “TextObject”) is used to store the instances of each separate element from the XML document (e.g., instances of each of elements “GraphicObject”, “Document”, “Sheet”, “Page”, “TextObject”, as listed in table 214). (See also MANNING, col. 6, lines 41 to 67). Further, with respect to its Fig. 3, in col. 5, lines 58-65 MANNING describes that the data object (e.g., attribute value or content), which is nested in an element tag of an element instance of the XML document, is inserted in a corresponding object column of an entry in the element table which stores that element instance. In other words, this passage of MANNING expressly describes that each separate attribute or content of an element instance is inserted into a corresponding column of the element table that is configured for storing that element instance. This is amply illustrated in Fig. 7 of MANNING – for example, the attributes “Number” and “side” of an instance of the “Sheet” element (e.g., such as the instances referred to by reference numerals 1002 and 1010 in Fig. 5) are stored in the corresponding columns “NUMBER” and “SIDE” in the “Sheet” table 218 in Fig. 7.

In contrast, Claim 4 includes the feature of wherein the mapping scheme further includes instructions on how to collapse a number of attributes of the XML document into a smaller number of attributes of the relational database, where the attributes of the relational database correspond to columns in tables in said relational database. In other words, this feature of Claim 4 indicates that the mapping scheme further includes instructions on how to collapse a number of attributes of the XML document into a smaller number of columns in tables of the relational database. Since MANNING describes that each attribute value or content of an element instance is stored in a corresponding column of an element table that stores the element instance, MANNING does not describe this feature of Claim 4.

For the foregoing reasons, MANNING does not describe all features of Claim 4, and therefore Claim 4 is patentable under 35 U.S.C. § 102(e) over MANNING. Reconsideration and withdrawal of the rejection of Claim 4 is respectfully requested.

Claim 43 depends from independent Claim 42, and is thus allowable for at least the reasons given above for Claim 42. Further, Claim 43 includes features similar to the features of Claim 4 discussed above, except in the context of a computer-readable storage medium. Thus, Claim 43 is patentable under 35 U.S.C. § 102(e) over MANNING for at least the reasons given above with respect to Claim 4. Reconsideration and withdrawal of the rejection of Claim 43 is respectfully requested.

E. DEPENDENT CLAIMS 35 AND 54

Claims 35 and 54 were rejected under 35 U.S.C. § 102(e) as allegedly anticipated by MANNING. The rejection is respectfully traversed.

Claim 35 depends from independent Claim 1, and is thus allowable for at least the reasons given above for Claim 1. Further, Claim 35 comprises the features of:

said mapping scheme includes instructions which define that operations included in said single transformation are grouped to represent a transaction; and

the step of using said mapping scheme to perform said single transformation further comprises performing said operations in said transaction.

The Office Action asserts that these features of Claim 35 are described in Figs. 2, 3, 7, and in col. 5, lines 10-50 of MANNING. This assertion is incorrect.

It is respectfully submitted that in col. 5, lines 10-50 MANNING does not describe or suggest any functionality of storing multiple element instances of an XML document into an XML repository as part of the same transaction. Further, Figs. 2, 3, and 7 do not describe any such functionality either. Finally, the Applicant reviewed MANNING in its entirety but could not find anything that describes or suggests a functionality of storing multiple element instances of an XML document into the XML repository as part of the same transaction. Rather, in col. 5, lines 46-52, MANNING describes that the XML document manager on the computer system makes a separate call, through a database driver and interface, to the database program on the computer system to insert entries in each of the separate tables in the XML repository, such as the element directory table and the element table.

In contrast, Claim 35 comprises the features of: said mapping scheme includes instructions which define that operations included in said single transformation are grouped to represent a transaction; and the step of using said mapping scheme to perform said single transformation further comprises performing said operations in said transaction. These features of Claim 35 indicate that the mapping scheme (which represents a mapping between the attributes of an XML document and the attributes of a relational database) includes instructions that define operations that are grouped as a transaction, and that the operations are performed in the transaction as part of the step of using the mapping scheme to perform a single transformation that moves the XML document directly into the relational database. Since MANNING does not describe any functionality of storing multiple element instances of an XML

document into an XML repository as part of the same transaction, MANNING does not describe the above features of Claim 35.

For the foregoing reasons, MANNING does not describe all features of Claim 35, and therefore Claim 35 is patentable under 35 U.S.C. § 102(e) over MANNING. Reconsideration and withdrawal of the rejection of Claim 35 is respectfully requested.

Claim 54 depends from independent Claim 42, and is thus allowable for at least the reasons given above for Claim 42. Further, Claim 54 includes features similar to the features of Claim 35 discussed above, except in the context of a computer-readable storage medium. Thus, Claim 54 is patentable under 35 U.S.C. § 102(e) over MANNING for at least the reasons given above with respect to Claim 35. Reconsideration and withdrawal of the rejection of Claim 54 is respectfully requested.

F. DEPENDENT CLAIMS 4-12, 33-35, 41, AND 43-55

Claims 4-12, 33-35, 41, and 43-55 were rejected under 35 U.S.C. § 102(e) as allegedly anticipated by MANNING.

Each of Claims 4-12, 33-35, 41, and 43-55 depends from one of independent Claims 1 and 42, and thus includes each and every feature of the independent base claim. Thus, each of Claims 4-12, 33-35, 41, and 43-55 is allowable for at least the reasons given above for Claims 1 and 42. In addition, each of Claims 4-12, 33-35, 41, and 43-55 introduces one or more additional features that independently render it patentable. However, due to the fundamental differences already identified, to expedite the positive resolution of this case a separate discussion of those features is not included at this time. Therefore, it is respectfully submitted that Claims 4-12, 33-35, 41, and 43-55 are allowable for the reasons given above with respect to Claim 1. Reconsideration and withdrawal of the rejection of Claims 4-12, 33-35, 41, and 43-55 is respectfully requested.

II. CONCLUSION

The Applicant believes that all issues raised in the final Office Action have been addressed. Further, for the reasons set forth above, the Applicant respectfully submits that allowance of the pending claims is appropriate. Reconsideration of the present application is respectfully requested in light of the remarks herein.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

A petition for extension of time, to the extent necessary to make this reply timely filed, is hereby made. If any applicable fee is missing or insufficient, throughout the pendency of this application, the Commissioner is hereby authorized to charge any applicable fees and to credit any overpayments to our Deposit Account No. 50-1302.

Respectfully submitted,

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